CLAIM LISTING

1-40. (Canceled)

41. **(Currently Amended)** A method comprising:

determining that an effective signal strength of a signal on a wireless communication link using signal diversity in one or more of the space, time, or frequency domains is insufficient to provide a desired communication range;

introducing signal diversity in an additional of the space, time, or frequency domains into the wireless communication link **in response to the determining** to generate multiple decorrelated signals corresponding to the signal on the wireless communication link; and

selectively combining the decorrelated signals and demodulating the combined, decorrelated signals to generate a representation of the content of the signal.

42. (Previously Presented) A method comprising:

providing a wireless communication link with a level of diversity;

detecting a degradation of signal quality on the wireless communication link; and

dynamically introducing additional diversity on the wireless communication link to result in the wireless communication link having diversity in two or more of the space, time, or frequency domains in response to detecting the degradation of signal quality, to generate a plurality of decorrelated signals to be selectively combined with at least the use of a weight vector and demodulated to provide a representation of an originally transmitted signal.

43. (Previously Presented) A method according to claim 42, wherein the wireless communication link comprises an uplink to a communication station.

44. (Previously Presented) A method according to claim 42, wherein detecting the degradation of signal quality on the wireless communication link comprises determining that a signal quality characteristic of the wireless communication link has achieved a threshold value associated with the characteristic.

45. (Previously Presented) A method according to claim 44, wherein the signal quality characteristic includes one or more of a receive signal strength, a signal to noise ratio (SNR), a

bit error rate (BER), a frame error rate (FER), signal to noise and interference ratio (SINR), or a carrier to interference ratio (CIR).

46. (Previously Presented) A method according to claim 42, wherein introducing additional diversity comprises:

communicating on a first channel of the wireless communication link;

determining whether a second channel is available on the wireless communication link to support repetition coding; and

invoking repetition coding to transmit a repetition coded signal on the first channel and on the second channel of the wireless communication link to provide channel diversity.

47. (Previously Presented) A method according to claim 46, wherein a channel is a timeslot on a particular carrier frequency.

48. (Previously Presented) A method according to claim 47, further comprising:

introducing frequency diversity in the repetition-coded signal, wherein each timeslot is dynamically assigned to an independent carrier frequency.

49. (Previously Presented) A method according to claim 46, wherein determining whether a second channel is available comprises determining whether a timeslot is available to support repetition coding.

50. (Previously Presented) A method according to claim 46, wherein introducing additional diversity further comprises:

enabling receipt of a signal via multiple channels and multiple receive paths.

51. (Previously Presented) A method according to claim 50, wherein enabling receipt via multiple receive paths comprises:

receiving the signal through multiple antenna elements.

52. (Previously Presented) A method according to claim 50, wherein the signals to be selectively combined comprises a receiving component of the wireless communication link:

performing initial spatial processing on a first channel by adding energy of signals associated with the channel via the multiple receive paths to form a composite signal of the associated signals;

performing an error control check on the composite signal; and

combining spatially processed composite signals associated with each of the channels including the repetition coded signal if the error control check on the composite signal fails.

53. (Previously Presented) A method according to claim 52, wherein spatial processing comprises:

combining each spatially diverse signal representation of the channel received from the multiple receive paths utilizing maximal ratio combining (MRC).

54. (Previously Presented) A method according to claim 52, wherein the error control check comprises:

demodulating the composite signal;

extracting error control information from at least a subset of the demodulated signal; and

performing a cyclical redundancy check (CRC) using the error control information to determine whether the demodulated signal matches an originally encoded signal.

55. (Previously Presented) An article of manufacture comprising a machine accessible storage device having a plurality of executable instructions which, when executed, cause the executing machine to perform operations including:

providing a wireless communication link with a level of diversity;

detecting a degradation of signal quality on the wireless communication link; and

dynamically introducing additional diversity on the wireless communication link to result in the wireless communication link having diversity in two or more of the space, time, or frequency domains in response to detecting the degradation of signal quality, to generate a plurality of decorrelated signals to be selectively combined with at least the use of a weight vector and demodulated to provide a representation of an originally transmitted signal.

56. (Previously Presented) An article of manufacture according to claim 55, wherein detecting the degradation of signal quality on the wireless communication link comprises

determining that one or more of a receive signal strength, a signal to noise ratio (SNR), a bit error rate (BER), a frame error rate (FER), signal to noise and interference ratio (SINR), or a carrier to interference ratio (CIR) of the wireless communication link has achieved a threshold value associated with the characteristic.

57. (Previously Presented) An article of manufacture according to claim 55, wherein introducing additional diversity comprises:

communicating on a first channel of the wireless communication link;

determining whether a second channel is available on the wireless communication link to support repetition coding; and

invoking repetition coding to transmit a repetition coded signal on the first channel and on the second channel of the wireless communication link to provide channel diversity.

58. (Previously Presented) A wireless communication system element comprising:

a transceiver to establish a wireless communication link over which to transmit and receive wireless communication signals in a wireless communication session with a different system element; and

a multidimensional diversity agent, coupled to the transceiver, to detect a degradation of signal quality on the wireless communication link, and in response to detecting the degradation of signal quality, selectively introduce additional diversity on the wireless communication link to result in the wireless communication link having diversity in two or more of the space, time, or frequency domains to generate a plurality of decorrelated signals, to selectively combine with at least the use of a weight vector the decorrelated signals, and to demodulate the combined signals to provide a representation of an originally transmitted signal.

59. (Previously Presented) A wireless communication system element according to claim 58, wherein the system element is a communication station, and wherein the additional system element is a subscriber unit.

60. (Previously Presented) A wireless communication system element according to claim 58, wherein the agent to detect the degradation of signal quality on the wireless communication link comprises the agent to determine that one or more of a receive signal strength, a signal to noise

ratio (SNR), a bit error rate (BER), a frame error rate (FER), signal to noise and interference ratio (SINR), or a carrier to interference ratio (CIR) of the wireless communication link has achieved a threshold value associated with the characteristic.

61. (Previously Presented) A wireless communication system element according to claim 58, the agent to introduce additional diversity comprises the agent to:

determine whether an additional channel is available on the wireless communication link to support repetition coding; and

invoke repetition coding to transmit a repetition coded signal on the additional channel to provide channel diversity with an original communication channel on the wireless communication link.

62. (Previously Presented) A wireless communication system element according to claim 61, wherein a channel is a timeslot on a particular carrier frequency, the agent to further:

introduce frequency diversity in the repetition-coded signal, wherein each timeslot is dynamically assigned to an independent carrier frequency.

63. (Previously Presented) A wireless communication system element according to claim 61, wherein the agent to determine whether an additional channel is available comprises the agent to determine whether a timeslot is available to support repetition coding.

64. (Previously Presented) A wireless communication system element according to claim 61, wherein the agent to introduce additional diversity further comprises the agent to:

enable receipt of a signal via multiple channels and multiple receive paths corresponding to multiple antenna elements.

65. (Previously Presented) A wireless communication system element according to claim 64, wherein the agent to selectively combine the signals comprises the agent to:

perform initial spatial processing on a first channel by adding energy of signals associated with the channel via the multiple receive paths to form a composite signal of the associated signals;

perform an error control check on the composite signal; and

combine spatially processed composite signals associated with each of the channels including the repetition coded signal if the error control check on the composite signal fails.